



ST.MERY UNIVERSITY
SCHOOL OF GRADUATE STUDIES
(MBA PROGRAM)

**DETERMINANTS OF CAPITAL STRUCTURE
DECISIONS IN CONSTRUCTION COMPANIES IN
ETHIOPIA**

BY

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ADVISOR: ASMAMAW GETIE (ASST.PROFESOR)
JAN.2017, ADDIS ABABA

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A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES
OF ST. MARY UNIVERSITY IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR DEGREE OF MASTER OF BUSINESS
ADMINISTRATION

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APPROVED BY THE BOARD OF EXAMINERS

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INTERNAL EXAMINER _____ SIGNATURE _____

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Statement of Declaration

I, Wendwesen Zewdie, declare that this thesis entitled “Determinants of capital structure decisions of Construction companies in Ethiopia” is my own work, which has not been presented for degree in this or any other universities and that all sources of materials used for the thesis have been properly acknowledged.

Declared by:

Name: Wendwesen Zewdie

Signature: _____

Date: _____

Statement of Certification

This Thesis Has Been Submitted for Examination with My Approval as University
Supervisor.

Name of Adviser: _____

Signature: _____

Date: _____

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Abstract

Selection of an optimal capital structure is always a critical issue for every firm. The reason for this is of course, financial risk and tax advantage which are directly influenced by a company's choice of capital structure. The choice of capital structure is influenced by certain factors. However these factors are still not very clear.

The purpose of this study is to examine the determinants of capital structure for construction companies in Ethiopia. The factors which were tested are; profitability, tangibility of assets, age of the firm, earning volatility, growth of the firm, size of the firm, liquidity and non-debt tax shields. In order to investigate these issues a quantitative method research approach is utilized, by a documentary analysis. More specifically, the study uses five years (2011 - 2015) data for 13 construction firms in Ethiopia. The result reveals that the variables including profitability, tangibility of assets, age of the firm, earning volatility, growth of the firm, size of the firm, liquidity negatively affect the capital structure of construction companies. Non-debt tax shields on the other hand, inversely affects their capital structure. In addition, the results of the analysis indicate that pecking order theory is pertinent theory in Ethiopian construction industry, whereas there are little evidence to support static trade-off theory. Therefore, construction companies should give consideration to profitability, tangibility of assets, age of the firm, earning volatility, growth of the firm, size of the firm And liquidity when they determine their optimum capital structure.

Key words: Determinants of Capital structure, Ethiopian Construction Companies, Pecking Order Theory, Trade of Theory.

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List of ACRONYMS

TOT -Trade off Theory.....	08
POT- Pecking Order Theory.....	08
EBIT-Earning before Interest and Tax	16
GDP -Gross Domestic Product.....	11
ERCA- Ethiopian Revenues and Customs Authority	13
SPSS Software Package for social sciences	17
LTO- Large Tax Payers Office.....	13
VIF-Variance Inflation Factor	33

Chapter one

1. Introduction

1.1. Back Ground of the Study

The move towards a free market, coupled with the widening and deepening of various financial markets has provided the basis for the corporate sectors to optimally determine their capital structure. Selection of an optimal capital structure is always a critical issue for every firm. The reason for this importance is of course, financial risk and tax advantage which are directly influenced by company's choice of capital structure.

Capital structure is an important management decision as it greatly influences the owners' equity return, the owners' risks as well as the market value of the shares. Whenever funds have to be raised to finance investment, a capital structure decision is made (Salawu, 2007). It is therefore incumbent on management of a company to develop an appropriate capital structure. In doing this, all factors that are relevant to the company's capital structure decision should be properly analyzed and balanced.

Firms belong to different industries depending on characteristics such as technology, nature of products or services produced, among others. Some characteristics of a market, such as the number and relative strength of buyers and sellers, level and forms of competition, extent of product differentiation, and ease of entry into and exit from the market, is different in any industry. The industry in which a firm operates is likely to have a significant effect on its capital structure. Harris and Haviv (2001) in their review of the capital literature noted that it is generally accepted that firms in a given industry have a similar proportion of individual assets

and liabilities.

Previous studies on corporate capital structure, for instance, (Bradley et.al. 2004) have documented significant industry effects in the cross section of firm's leverage. These findings suggest that there might be unobservable factors affecting corporate capital structure, such as business risk that vary across industries and remain relatively constant for firms within the same industry. It is therefore imperative that capital structure of comparable companies in the industry be considered because it might reflect the unique risks inherent in that industry.

1.2 Statement of the Problem

Every company would like a capital structure which is best fitted to a situation that simultaneously minimizes the cost of capital and maximizes the firm value. Selection of an optimal capital structure is always a critical issue for every firm. However, a capital structure that is perfectly optimal is almost impossible to determine in practice because several variables - some even conflicting - influence capital structure. Literature suggests that debt requirements of a firm in one industry differ from the firm in another industry because the various industries experience different business environments (Titman & Wessels, 2008).

Following the seminal work of Modigliani and Miller (1958), a vast theoretical literature developed, which led to the formulation of alternative theories, such as the static trade off model, pecking order theory and agency cost theory. These theories point to a number of specific factors that may affect the capital structure of firms such as (profitability, size, tangibility, growth, risk, liquidity, age and NDTs). However, the empirical evidence regarding the alternative theories is still questionable (Rajan and Zingales 2005). For example, Static trade off-theory assumes a firm's optimal debt ratio is determined by a trade-off between the bankruptcy cost and tax advantage of borrowing, holding the firm's assets and investment plans

constant. According to this theory, higher profitability lower the expected cost of distress, therefore, firms increase their leverage to take advantage from tax benefits. Which means in other word profitability is positively related with leverage. As well agency theory supports this positive relation because of the free cash flow theory of Jensen (2006). But, pecking order theory Myers and Majluf (2004) throws doubt on the existence of target capital structure, suggesting that firms use debt only when the internal financing is not available. For this reason profitability is expected to have negative relation with leverage.

The determinants of capital structure have been debated for many years and still represent one of the most unsolved issues in corporate finance literature. Indeed, what makes the capital structure debates so exciting is that only a few of the developed theories have been tested by empirical studies and the theories themselves lead to different, not mutually exclusive and sometimes opposed result and conclusion (Rajan and Zingales 2005).

Understanding the determinants of capital structure is important for construction firms. According to Amidu (2007) currently, there is no clear understanding on how construction companies choose their capital structure and what factors influence their corporate financing behavior.

It is well known that Ethiopia's economy is growing over the last decade. So it is really helpful to know the determinants of capital structure in financial decision making. Therefore, this study tried to find out the relationship between leverage and firm specific determinants of capital structure decision.

1.3 Objective of the Study

The study aims at investigating the determinants of capital structure of construction companies in Ethiopia, thereby attempts to test the validity of dominant capital structure theories to these construction companies. Specifically, the study attempts to address the following objectives:

- The variability of capital structure with the size of the firms;
- The influence of tangibility of firms' assets on capital structure;
- The extent to which profitability influences the capital structure of the firms;
- The influence of earnings volatility on firms' capital structure;
- The influence of NDTs on capital structure;
- The influence of liquidity on capital structure;
- The variability of capital structure with the growth of the firms; and
- The influence of firms' age on its capital structure

1.4 Research Questions and Hypotheses

To achieve the objective of this study, in addition to the research questions presented eight hypotheses concerning the determinants of capital structure choice on the Ethiopian Construction industry were tested.

Capital structure theories have different views on the relationship between leverage and profitability. The trade-off theory argues that firms generally prefer debt for tax considerations. Profitable firms would, therefore, employ more debt because increased leverage would increase the value of their debt tax shield (Myers 2004).

In addition to the tax advantage of debt, agency and bankruptcy costs may encourage highly profitable firms to have more debt in their capital structure. This is because highly profitable

firms are less likely to be subject to bankruptcy risk because of their increased ability to meet debt repayment obligations. Thus, they will demand more debt to maximize their tax shield at more attractive costs of debt. For these considerations, the trade-off theory predicts a positive Relationship between leverage and profitability.

However, the pecking order theory of Myers and Majluf (2004) predicts the opposite. It predicts a negative association between leverage and profitability because high profitable firms will be able to generate more funds through retained earnings and then have less leverage. Therefore, it is expected that there is negative relationship between profitability and leverage ratio.

HP 0: There is no a negative relationship between leverage ratios and profitability.

HP 1: There is a negative relationship between leverage ratios and profitability.

According to pecking order theory firms with high growth will tend to look to external funds to finance the growth. Myers (2004) confirms this and concludes that firms with a higher proportion of their market value accounted for by growth opportunity will have debt capacity. Therefore, it is expected that there is a positive relationship between growth and leverage ratio

HP 0: There is no a positive relationship between leverage ratios and growth.

HP 2: There is a positive relationship between leverage ratios and growth.

Tangibility is an important determinant of the capital structure of a firm. The trade-off theory predicts a positive relation between tangibility and debt levels. As the value of intangible assets disappears (almost entirely) in the cases of bankruptcies, the presence of tangible assets is expected to be important in external borrowing as it is easy to collateralize them. Tangible assets

often reduce the costs of financial distress because they tend to have higher liquidation value (Titman and Wessels (2008); Harris and Raviv (2001). Pecking order theory of Myers and Majluf, (2004) conclude that issuing debt secured by property, avoids the costs associated with issuing shares. This suggests that firms with more collateralized assets (fixed assets) will be able to issue more debt at an attractive rate as debt may be more readily available. This results in a positive association between leverage and tangibility. Therefore, it is expected that there is a positive relationship between tangibility and leverage ratio.

HP 0: There is no a positive relationship between leverage ratios and tangibility.

HP 3: There is a positive relationship between leverage ratios and tangibility.

One item besides interest which contributes to reduce tax payments are labeled as non-debt tax shields (for instance depreciation). DeAngelo and Masulis (2007) argued that non-debt tax shields can replace of tax advantage of debt financing and a firm with large non-debt tax shields is more likely to use smaller amount of debt. For this reason, the relationship between non-debt tax shields and leverage is supposed to be negative. Inverse relation between non-debt tax shields and leverage is also found by Kumer and Reddy (1998); Huang and Song (2006); and Titman and Wessel (1988). Even though, other researchers such as Rafiu and Akinlolu (2008) and Bradley et al. (2004) identify a positive correlation between leverage ratio and non-debt tax shields.

HP 0: There is no a negative relationship between leverage ratios and non-debt tax shield.

HP 4: There is a negative relationship between leverage ratios and non-debt tax shield.

According to trade-off theory, firm size could be an inverse proxy for the probability of the bankruptcy costs. Larger firms are likely to be more diversified and fail less often. They can

lower costs (relative to firm value) in the occasion of bankruptcy. Larger firms are more likely to have higher debt capacity and are expected to borrow more to maximize the tax benefit from debt because of diversification (Titman and Wessels (2008). Therefore, size has a positive effect on leverage. Size can be regarded as a proxy for information asymmetry between managers and outside investors. Large firms are subject to more news than small firms because the investment community would be more concerned with gathering and providing information about large firms. This makes large firms more closely observed by analysts and less subject to information asymmetry than small firms. Thus, they should be more capable of issuing equity which is more sensitive to information asymmetry and have lower debt (Rajan and Zingales, 2005). This suggests that pecking order theory predicts a negative association between leverage and the size of firm.

HP05: There is no a positive relationship between leverage ratios and size.

HP 5: There is a positive relationship between leverage ratios and size.

Earning volatility is described as the inherent business risk in the operation of a firm or a result of inefficient management practices. The combined prediction of trade-off theory and pecking order theory suggests a negative relationship between earning volatility and leverage due to the increases in the likelihood of being unable to meet financial obligations with the increase in earnings volatility. Likewise, Bhaduri (2002), Frank and Goyal (2008), Attaullah and Sufiullah (2007), Bradly et al. (2004), and Titman and Wessel (2008) reported negative relationship between earning volatility and leverage. However, Kim and Sorensen (2001) found positive relation between earning volatility and firm's leverage.

HP0: There is no a negative relationship between leverage ratios and earning volatility.

HP 6: There is a negative relationship between leverage ratios and earning volatility.

There are two different opinions on the association between liquidity and capital structure: First view implies a positive significant relation that is consistent with trade off theory. Companies with more liquidity (more current assets) tend to use more external borrowing, because of their ability in paying off their liabilities. Second view points to a negative significant relation that is consistent with the pecking order theory, arguing that companies with more liquidity will decrease external financing, relying on their internal funds. Thus, liquidity ratios may have a mixed effect on the capital structure decisions. Most of the previous studies, confirm the negative relation, (Fawad Ahmed et al., 2011, and Najjar and Petrov 2011). Hence, liquidity is expected to have negative impact on leverage ratio.

HP 0: There is no a negative relationship between leverage ratios and liquidity

HP 7: There is a negative relationship between leverage ratios and liquidity

There are controversies between trade-off and pecking order theories on the effect of age on leverage. The trade-off theory suggested that as the firm become mature, its borrowing capacity increases implying a positive relation between leverage and age of the firm. Additionally, Berger and Udell (1998) states that as the firm matures it could have increased fixed assets in the form of land and building on which it may secure mortgage finance an long-term debt and also may accumulated assets uses as debt collateral in the form of inventory, account receivable and equipment. However, pecking order theory argued that as the firm matures, it builds its reputation. Which means the good name a firm built up over the years; the name is recognized by the market, thus leading to better and easier to raise equity finance than debt capital.

A study by Petersen and Rajan (2004) reveals that mature firms have higher debt ratio since they are supposed of high quality firms. Furthermore, Hall, Hutchinson and Michaelas (2004) agreed that age is positively related to long-term debt but negatively related to short-term debt.

Nevertheless, Esperanca, Gama and Gulamhussen(2003) found that age is negatively related to both long-term and short-term debt.

HP0: There is a positive relationship between leverage ratios and age of the firm.

HP8: There is a positive relationship between leverage ratios and age of the firm.

Based on the broad research objective, the following research questions and hypotheses were developed.

Research questions (RQ)

RQ1. What determine the capital structure of construction companies in Ethiopia?

RQ2. Which theory explains the financing behavior adopted by Ethiopian construction industry?

1.5 Significance of the Study

- The findings of this study will help in establishing if the relationship between a firm's leverage and its determinants depends on industry affiliation.
- The management of corporate organizations will gain knowledge of industry factors that influence their capital structures and therefore be able to make appropriate financing decisions.
- Government policy makers will be able to use these findings to set guidelines for firms in each industry.
- Business advisers and finance consultants may be interested in knowing the factors that are considered in designing capital structures for construction companies.
- Researchers and academicians may also use this study as a basis for further research.

1.6 Scope and Limitation of the Study

The research focused mainly only on firms in Ethiopian Construction Industry operated for at least five years, and on identifying the major determinants of capital structure of construction companies. The work used variables that could affect construction companies according to the nature and data availability. Hence, the study may not be exhaustive because there was a lack of data to incorporate some other factors that affect construction companies in theory.

1.7 Organization of the Research Paper

The remaining chapters of this paper are organized as follows: the next chapter reviews some of the theoretical and empirical literatures; chapter three presents the research methodology; chapter four reports the data analysis and discussion; finally, the fifth chapter presents the conclusions and recommendations that derived from the findings.

Chapter Two

2. Literature Review

2.1 Introduction

This chapter will present a review of relevant literature on the determinants of capital structure on Ethiopian construction industries. It will review theories of capital structure and information on determinants of capital structure from researchers who have conducted studies on the same field of study.

2.2 Construction Industry in Ethiopia

Construction industry plays a vital role in the socio-economic development of the country. Besides its direct contribution for the socio-economic development of the country such as in generating employment and contribute to the GDP growth of the country, the construction sectors support other sectors in order to be active participant to the development of the country's economy.

Khan (2008) noted that "the construction industry makes a noticeable contribution to the economic output of a country; it generates employment and incomes for the people and therefore the effects of changes in the construction industry on the economy occur at all levels and in virtually all aspects of life". From this it can be understand that neglecting the construction sector in general means that neglecting all sectors, because the construction sector connects directly or indirectly with other sectors of the country. Therefore, it can be said that the construction industry is the driver of the economic

growth of the country.

Although, this sector generally seen as a driver of economic growth of the country, the construction companies in Ethiopia have no clear financing trend , and consequently it is difficult to predict the prospects of the construction industry in general. Thus, this study aimed at to know how the construction companies, in Ethiopia, finance their business; and to give some suggestions depending on the result of the study.

2.3 Theoretical Review

This section reviews the theoretical models relevant to this study. The primary focus of the study is capital structure. Theories of capital structure try to explain what happens to the overall cost of capital and value of the firm when the proportions of the funds that make up the capital are varied. They try to guide the corporate finance managers in choosing the optimal proportion of debt and equity for their firm. The researcher will give a brief review of some of those theories.

2.3.1The ‘Irrelevance’ Theory

Modigliani and Miller (1958) demonstrated in their seminal paper ‘The cost of capital, corporation finance, and the theory of investment’ that in the absence of taxes, bankruptcy costs, transaction costs and asymmetric information and the same rate of interest of borrowing by individuals and corporations, the value of a firm is independent of its financial structure. It does not matter if the firm’s capital is raised by issuing or selling debt. It does not matter what the firm’s dividend policy is. The model is based on a

framework that starts with assumptions of perfect competition in factor and product markets and no transaction costs. Modigliani and Miller (1958) conclude that a firm cannot increase its value by using debt as part of its permanent capital structure. This argument is based on perfect arbitrage such that investors can assume personal debt to help financing the purchase of unlevered shares, if the value of the levered shares is greater than the unlevered ones. With perfect arbitrage any discrepancies in the value of the stocks of two hypothetical firms, one with levered shares and the other with unlevered shares, will be eliminated. Capital structure is thus irrelevant to firm value.

Including tax deductibility of interest payments into their model, Modigliani and Miller (1963) show that borrowing will only cause the value of the firm to rise by the amount of the capitalized value of the tax subsidy. Relaxing assumptions in their original work and introducing imperfect competition, bankruptcy costs, asymmetric information, and monopoly power, financial structure appears to be an influencing factor on firm value. The introduction of tax deductibility of interest payments has an implication on the choice of capital structure. Profitability increases, non-debt tax shields reduce and liquidity increases.

2.3.2 Static Trade-off Theory

When Modigliani and Miller (1963) added corporation tax to the original irrelevancetheory, a benefit for debt was created. The trade-off theory states that the optimal debt ratio of a firm is determined by a trade-off between cost and benefits of borrowing, holding the firm's assets and investment plans constant. Firms balance debt and equity positions by making trade-off between the value of interest tax shields and the cost of bankruptcy or financial distress. Provided there are no adjustment costs attached to capital structure changes, the observed capital structure should be optimal in the sense that it maximizes the firm value (Myers, 2004).

Interest being a tax deductible expense, decreases the tax liability and increases the after tax cash flows. This increases profitability and liquidity which this study wishes to consider as among the determinants of capital structure. Firms in their attempt to increase cash flows and market value will embark on higher level of debt if the tax rate is higher. Thus, tax rate and leverage have positive relationship.

The possibility of default on debts increases with the increase in level of debt beyond the optimal point. Should the firm default on repayment of loan; the control of the firm will be shifted from shareholders to bondholders who will try to repossess their investment through the process of bankruptcy. This implies that the potential benefits from employing leverage are shadowed by the potential costs of bankruptcy.

2.3.3 Pecking Order Theory

The pecking order theory is based on the assertion that managers have more information about their firms than investors. This disparity of information is referred to as information asymmetry. According to Myers and Majluf (2004), if investors are less informed than the firm insiders about the value of the firm, then equity may be mispriced by the market. When firms need to finance new investments, underpricing may be so severe that new investors capture more than the net present value (NPV) of the project resulting in a dilution of value to the existing investors. This can lead to under-investment result, that is, the project will be rejected. To avoid this, firms establish a preference conditions; firms prefer internal finance over external finance, safe debt over risky debt and convertibles and finally common stocks (Myers & Majluf, 2004). This theory is based upon costs derived from asymmetric information between managers and the market and the assumption trade-off theory costs and benefits of debt financing are of second order importance when compared to the costs of issuing new securities in the presence of asymmetric information. Tangible assets are less subject to information asymmetries and usually have a greater value than intangible assets in the event of bankruptcy. This therefore means that tangibility of assets should be a factor to consider in the choice of capital structure.

Myers (2004), states that an optimal capital structure is difficult to define as equity appears at the top and at the bottom of the 'pecking order'. Internal funds incur no flotation costs and require no disclosure of the firm's proprietary financial information that may include the firm's potential investment opportunities and gains that are expected

to accrue as a result of undertaking such investment. This brings into perspective the issue of growth as a determinant of capital structure. According to pecking order theory hypothesis, a firm will use first internally generated funds which may not be sufficient for a growing firm so the next option is for the growing firms to use debt financing which implies that a growing firm will have a high leverage (Drobetic& Fix 2003). Hence firm growth should be considered as a determinant of capital structure.

2.3.4 Agency Theory

Jensen and Meckling (1976) identify the possible conflict between shareholders and managers interests because of the manager's share of less than 100 percent in the firm. The managers' given role has many implications for the capital structure of a firm. Managers make investment decisions based on imperfect markets and incur agency costs of different types, thus influencing firm's value (Jensen and Meckling, 1976). Optimal capital structure can be obtained by trading off the agency cost of debt financing for the benefit of debt financing.

Free cash flow refers to cash flow available after funding all projects with positive cash flows. Managers may try to use the free cash flows sub-optimally or use them to their own advantage rather than to increase value of the firm. Jensen (2006) suggests that this problem can be somehow controlled by increasing the stake of Managers in the business or by increasing debt in the capital structure, thereby reducing the amount of 'free' cash available to managers' .Jensen (2006). Thus, debt serves as a mechanism to discipline the managers from engaging in self-serving activities, e.g. perquisite consumption, empire building etc. Grossman and Hart (2009) argue that short-term debt can serve as a

mechanism to align managerial incentive with that of shareholders since bankruptcy is costly for management. This implies that liquidity is an important determinant of capital structure. An agency cost of managers consuming high perquisites is higher for firms with lower levels of assets that can be used as collateral. Hence tangibility of assets should be considered as a determinant of capital structure.

2.4. Determinants of Capital Structure

There are different factors that affect a firm's capital structure, and a firm should attempt to determine its optimal, or best, mix of financing. The optimal mix of financing is that which maximizes the value of the firm and minimizes the cost of capital. But determining the exact optimal capital structure is not a science, so after analyzing a number of factors, a firm establishes a target capital structure which it believes is optimal.

Miller and Modigliani (1958) 'irrelevance theory' suggest that the firm value is independent of its capital structure under certain assumptions. They argued that there would be arbitrage opportunities in the perfect capital market if the value of the firm depends on its capital structure. Furthermore, investor can neutralize any capital structure decision of the firm if both investor and firms can borrow at the same rate of interest. Due to its unrealistic assumptions it gave birth to several other theories such as trade-off theory and pecking order theory which explain different aspects of capital structure.

The trade-off theory says that a firm's adjustment toward an optimal leverage is influenced by three factors namely taxes, costs of financial distress and agency costs. The use of debt provides tax benefits and can also create a serious financial distress in case of relying on too much debt. Agency costs may also be a base of conflict of interest between different stakeholders of the firm because of information asymmetry (Jensen, 2006). Under this theory, a firm considers the cost and benefits associated with debt capital in bringing its capital structure near to the optimal level.

The pecking order theory is based on the assertion that managers have more information about their firms than investors. The theory tries to explain how a company raises new funds to finance new projects. The pecking order theory states that firms prefer to finance new investments first internally with retained earnings, then debt and finally with issue of new equity (Myers, 2004). It assumes that the company does not target a specific debt equity ratio but it only uses external sources of finance when the cheaper sources of financing (retained earnings) are exhausted.

Theoretical and empirical literature suggests a number of factors that may influence the capital structure of companies. Leverage will be used as the dependent variable and measured as the ratio of interest-bearing debt to total assets. The following independent variables shall be considered for this study: tangibility of assets, firm size, firm growth, age of the firm, Earning volatility, profitability, non-debt tax shields and liquidity. Some factors have positive, some negative and others have interactive and complex relationship with capital structure.

2.4.1 Size

Even though, several studies discover that the size of a firm is a good determinant of leverage ratio, there are contradictory views about the correlation of size and leverage of a firm. Titman and Wessel (2008) suggest that larger firms being more diversified and have lesser chances of bankruptcy, this enables them to finance with debt at more favorable interest rate (Ferri& Jones, 2009). In addition to this, many research findings show that the size of a firm positively influences the leverage ratio. Booth (2001); and Huang and Song (2006) discover a significant positive association between size and leverage ratio in developing countries. Whereas, Rajan and Zingales (2005) suggests that as a result of less asymmetric information about the larger companies, it diminishes the chance of undervaluation of the new equity issue. This makes current shareholders willing to embark up on issuing stock as a way of getting finance rather than granting loan. This implies that there is negative relation between size and leverage of firms.

2.4.2 Profitability

Many authors have different views on the relationship between leverage and profitability. The pecking order theory strongly suggests a negative relationship between leverage and profitability. If a firm has more retained earnings, it will be in a better position to finance its future projects by retained earnings, instead of external debt financing. Regardless of the industry in question, it has been found that the most profitable firms borrow the least. The finding that the more profitable the firm is, the less they borrow, is against the trade-off model. The trade-off model suggests that profitable firms should borrow more, since they have a greater need to protect income from corporate taxes. What should also support a positive relationship

between profitability and leverage is that the probability of bankruptcy decreases as profitability increases (Myers 2004). The researcher used the ratio of operating income to total assets as the proxy for profitability.

2.4.3 Tangibility

Tangibility is defined as the ratio of fixed assets to total assets. Fixed assets play important role in leverage level of firms. A firm with large amount of fixed assets can borrow at relatively lower rate of interest by providing the security of these assets to creditors. Having the incentive of getting debt at lower interest rate, a firm with higher percentage of fixed asset is expected to borrow more as compared to a firm whose cost of borrowing is higher because of having less fixed assets.

Tangible assets are less subject to informational asymmetries and usually they have a greater value than intangible assets in the event of bankruptcy. The trade-off theory predicts a positive relationship between measures of leverage and the proportion of tangible assets. Relative to this theory, Bradley (1984) and Rajan and Zingales (2005) find leverage to be positively related to the level of tangibility. Following Rajan and Zingales (2005), positive relationship between tangibility and Leverage is expected. Rajan and Zingales (2005), Odinga (2003) and Kuria (2010).

2.4.4 Growth

Pecking order theory argues that growing firms which use first internal sources of finance may not be sufficient for investment purpose and the next option is to use debt financing. This implies that a growing firm will have a high level of leverage. However, the trade-off theory

suggests that in order to avoid asset substitution and under-investment that can arise from stockholder-bondholder agency conflicts, firms with more investment opportunities have less leverage. This theory estimates a negative relationship between a firm with growth opportunities and the corresponding leverage. Empirical evidences concerning the relationship between growth and leverage are much notorious. Titman and Wessel, (2008) and Attaullah and Sufiullah (2007) mentions that the agency costs of growing firms are likely to be higher and this results high cost of debt. Thus, growing firms facing high cost of debt will use less debt and more equity. Consequently, a negative relationship between growth and financial leverage is expected. In line with this prediction, Jensen and Meckling (2006), Myers (2002), and Rajan and Zingales (2005) put forward a negative correlation between growth and the level of leverage from developed countries. However, Huang and Song (2006) demonstrate a positive relation between growth and leverage.

2.4.5 Earnings Volatility

Earning volatility is described as the inherent business risk in the operation of a firm or a result of inefficient management practices. The combined prediction of trade-off theory and pecking order theory suggests a negative relationship between earning volatility and leverage due to the increases in the likelihood of being unable to meet financial obligations with the increase in earnings volatility. Likewise, Bhaduri (2002), Frank and Goyal (2008), Attaullah and Sufiullah (2007), Bradley et al. (2004), and Titman and Wessel (2008) reported negative relationship between earning volatility and leverage. However, Kim and Sorensen (2006) found positive relation between earning volatility and firm's leverage.

2.4.6 Liquidity

There are two opposite views relating the relationship between liquidity and leverage. According to trade off theory, the more liquid firm would use external financing due to their ability of paying back liabilities and to get benefit of tax shields, resulting in positive relationship between liquidity and leverage.

Pecking order theory(TOT) assumes that the more liquid firm could use first its internal funds and would decrease level of external financing, resulting in negative relationship between liquidity and leverage. Most studies have found the negative relationship (Mazur, 2007).

In this study negative relationship between liquidity and leverage is expected. Not many studies have tested the effect of liquidity on the choice of capital structure. Mazur (2007) and FawadAhmad (2011) measured liquidity as the ratio of current assets to current liabilities. In this study, Liquidity was measured as the ratio of current assets to current liabilities.

2.4.7 Non-Debt tax shield

The Trade of Theory (TOT) predicts that companies have an incentive to take debt because they can benefit from the tax shield due to interest deductibility. However, according to DeAngeloandMasulis(2007) andGraham (2000), if firms have non-debt tax shields (NDTS), such as depreciation and investment tax credits, they have a lower incentive to use debt from a tax shield point of view and hence use less debt. Thus, based on the empirical results reported by DeAngeloandMasulis, (2007) and Graham (2000), the researcher for this study predicted a negative coefficient for NDTS in the equation explaining firm'sleverage.Following the

measurement used by Titman & Wessel (2008) and Fawad Ahmed (2011), the ratio of annual depreciation expense to total assets was used as a proxy for non-debt tax shield in this study.

2.4.8 Age of the firm

There are controversies between trade-off and pecking order theories on the effect of age on leverage. The trade-off theory suggested that as the firm become mature, its borrowing capacity increases implying a positive relation between leverage and age of the firm. Additionally, Berger and Udell (1998) states that as the firm matures it could have increased fixed assets in the form of land and building on which it may secure mortgage finance an long-term debt and also may accumulated assets uses as debt collateral in the form of inventory, account receivable and equipment. However, pecking order theory argued that as the firm matures, it builds its reputation. Which means the good name a firm built up over the years; the name is recognized by the market, thus leading to better and easier to raise equity finance than debt capital.

A study by Petersen and Rajan (2004) reveals that mature firms have higher debt ratio since they are supposed of high quality firms. Furthermore, Hall, Hutchinson and Michaelas (2004) agreed that age is positively related to long-term debt but negatively related to short-term debt. Nevertheless, Esperanca, Gama and Gulamhussen (2003)found that age is negatively related to both long-term and short-term debt.

On the other hand, it may also be argued that as the firm matures it builds reputation leading to better access to equity markets and it implies that age should be negatively related to leverage, and is consistent with pecking order theory.

Consistent with trade of theory, majority of the empirical results in Ethiopia shows that there is a positive relationship between age of the firm and leverage. Kinde (2011) and Amanuel (2011).

Ashenafi (2005), in the contrary found inverse relation between age and leverage in consistent with pecking order theory.

In general, one of the important decisions that the finance managers of construction companies are concerned with is decisions relating to capital structure. In order to formulate the target capital structure of the firm that may increase its value, finance manager of the firm should be concerned with the trading off possible benefit of financing the operation of the firm through debt and its cost.

Prior empirical study in Ethiopia mainly focuses on examining the determinants of capital structure of companies from different sectors e.g. Ashenafi (2005) and Amanuel (2011)). However, the empirical evidence suggests that there is significant industry influence on capital structure decisions of the companies. As noted by Harris and Raviv (2001) and Esperanga (2003) firms in the same industry have more in common than firms in different industries and thus, the capital structure of firms is highly affected due to industry difference. So, analyzing separate industry, in this case the Ethiopian Construction industry individually may produce better results. Therefore, this empirical study was designed to address these shortcomings and, further, to find out industry specific determinants of capital structure by taking the Ethiopian Construction sector as a case.

Chapter Three

3. Research Methodology

3.1 Research Approach

As noted in Creswell (2009) in terms of investigative study there are three familiar types of research approaches to business and social research namely, quantitative, qualitative and mixed methods approach. Therefore, the following discussion briefly presents the basic nature of quantitative, qualitative and mixed research approaches along with their respective merits and demerits.

Quantitative research is a means for testing objective theories by examining the relationship among variables, Creswell (2009). In quantitative research approach there are two strategies of inquiries namely, survey design and experimental design. The chief advantage of this approach is that numbers are easy to work with, data are readily collected, coded, summarized and analyzed, Dunn (2009). Further quantitative research approach has the advantage of being able to make generalizations, for a broader population, based on findings from the sample. Apart from its advantages, as noted by Dunn (2009) quantitative research approach has the following disadvantages. For example, the sample selected may not represent the total population and the researchers know much about the collective or average experience of research participants, but not their individual experiences, Dunn (2009).

Qualitative research approach is one in which the investigator often makes knowledge claims based primarily on the multiple meanings of individual experiences, socially and historically constructed meanings, participation in issues, collaboration or change oriented with an intent of developing a theory or pattern, Creswell (2009). As noted in Yeseggat (2009) qualitative research approach uses strategies of inquiry such as narratives, ethnographies, grounded theory studies, or case studies. The key advantage of qualitative research design is that it discloses the richness of human experience Dunn, (2009). Moreover, qualitative research design has advantages like flexibility and emergent without being constrained by standardized procedures, Yeseggat (2009). Apart from the above mentioned advantages, qualitative research design has also its own weaknesses. As noted in Dunn (2009) the demerits of this approach includes; absence of quick response, difficulty, inefficiently, and lack of generalization among others.

Mixed research is an approach to inquiry that combines or associates both qualitative and quantitative forms (Creswell, 2009). As a major advantage, when the investigator uses this approach he can learn more about the research problem. In connection to this, yeseggat, (2009) also emphasized that as all methods have inherent biases and limitations, so use of only one method to assess a given phenomenon will inevitably yield biased and limited results. Besides, as an additional merit, the approach is not limited to one method or the researcher is not committed to only one method which means the investigator is flexible. Considering the research problem and objective along with the philosophy of the different research approaches, quantitative research approach was found to be appropriate for this study. The following section hence presents the methods that were adopted in the study.

3.2 Method of Sampling and Sample Size

Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis (Creswell 2009,). Therefore, in order to achieve the objective stated in the preceding section, considering the nature of the problem and the research perspective this study used the quantitative method research approach. Accordingly, the quantitative method was mainly used to investigate determinants of capital structure of construction companies in Ethiopia, and the financial data were collected through structured survey of documents.

The subsequent discussions provide the quantitative aspect of the study, and data analysis methods. .

This study was conducted on Ethiopian Construction Industry, in which a total of 133 construction companies are operating at the moment and classified as a large construction companies by Ethiopian Revenue and Customs Authority (ERCA), large tax payers office (LTO). Therefore, as noted by Cohen (2005), covering the entire construction firms in the study makes the study difficult. Therefore the researcher decided to draw only 13 companies as a sample from the total population. To give equal chance for each construction company being included in the sample, Simple random sampling technique was used. Thus only 13 construction companies, have, therefore, been drawn randomly from the whole population. Those sample construction companies includes.

- > GIGA CONSTRUCTION
- > MIDROK CONSTRUCTION P.L.C
- > TEKLEBERHAN AMBAYE CONSTRUCTION
- > DMC CONSTRUCTION
- > SUNSHINE CONSTRUCTION P.L.C.
- > AKIR CONSTRUCTION P.L.C.
- > YENCOMAD CONSTRUCTION
- > SATCON CONSTRUCTION
- > YOTEK CONSTRUCTION P.L.C
- > RAMA CONSTRUCTION
- > GAD CONSTRUCTION
- > MAGERCON CONSTRUCTION

3.3 Source of Data and Data Collection Method

Secondary data was collected from published annual financial statements and reports maintained at the Ethiopian Revenues and customs Authority. Data for a period of five years between 2011 and 2015 was collected for the purpose of this study. Data collected was used to measure the

following variables: profitability, size, age, tangibility, liquidity, non-debt tax shield, growth, and earnings volatility for construction companies.

3.4 Variables Description

The following were dependent and independent variables for determinants of capital structure for construction companies in Ethiopia.

Dependent variable-Leverage ratio

Independent variables-profitability, size, age, tangibility, liquidity, non-debt tax shield, growth, and earnings volatility.

3.5 Regression and Model Specification

Regression models are used to predict one variable from one or more variables (Saunders et. al., 1997). This study used Multiple Regression analysis. A regression was run to measure the impact of the independent variables on leverage. The analytical model for this study is developed from Anwar (2011) who used a similar model to analyze data for three different sectors. The estimated model is:

$$LEVR_{i,t} = a + p1PRO_{i,t} + p2GROW_{i,t} + p3SIZE_{i,t} + p4TANG_{i,t} + p5NDTS_{i,t} + p6EVOL_{i,t} + p7LIQU_{i,t} + p8AGE_{i,t} + (y_{it} + E_{it})$$

Where;

LG = Leverage, as given by; Total interest-bearing Debt(EBIT) divided by Total Assets

PF i,t =Profitability, as given by; EBIT divided by Total Assets for firm i in time t

$SZ_{i,t}$ =Size, as given by; Natural logarithm of sales for firm i in time t

$TG_{i,t}$ =Tangibility, as given by; Total fixed Assets divided by Total assets for firm i in time t

$GT_{i,t}$ =Growth, as given by; % change in Total Assets for firm i in time t

$LQ_{i,t}$ =Liquidity, as given by Current Assets divided by Current Liabilities for firm i in time t

$NDTS_{i,t}$ =Non-Debt Tax Shield, as given by; Depreciation divided by Total Assets for firm i in time t

$AGE_{i,t}$ = Age of the companies (since its establishment) for firm i in time t

$EVOL_{i,t}$ = Earnings Volatility (absolute value of percentage change of Operating Income) for firm i in time t

$\hat{\epsilon}_{it} + \epsilon_{it}$ = Error tem which is assumed to have a normal distribution and a is

Constant term, 01, 02, 03, 04, 05, 06, 07and 08 are the coefficients of firm-specific variables.

3.6 Data Analysis Technique

The above econometric model reveals that there is a regression analysis between one dependent variable (leverage ratio) against eight independent variables (Profitability, growth opportunity, size, tangibility of assets, non-debt tax shield, earnings volatility, liquidity and age) and therefore, multiple regression analysis was used for the study. In analyzing the data, the researcher used SPSS 16 software packages. The diagnostic tests and estimating the result for the study were conducted through SPSS 16 software package, because the researcher believes that SPSS software package is relatively simple to understand for diagnostic test, estimating and interpretation of the result.

Chapter Four

Result Analysis and Discussions

4.1 Introduction

This chapter presents the results of data analysis and research findings. The research findings presented were based on the study whose research objective was to investigate the determinants of capital structures of construction companies in Ethiopia. Data of targeted registered companies was collected from financial statements available at ERCA. This was then used to compute the various ratios which constituted variables in the study. The chapter presents regression analysis followed by a summary and interpretation of the findings.

4.2. Regression Analysis Results

A regression analysis was performed to determine the relationship between leverage and each independent variable.

4.2.1 Testing the Model

Table 4.1: ANOVA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.629	8	.079	3.772	.001 ^a
	Residual	1.167	56	.021		
	Total	1.795	64			

a. Predictors: (Constant), Age, Growth, EVO, Liquidity, size, Profitability, NDTs, Tangibility

b. Dependent Variable: Leverage

Source: SPSS Regression Result

The table shows that the independent variables statistically predicts the dependent variable $p < 0.05$ (i.e. the regression model is a good fit for the data).

Table 4.2. Testing the model by R squared

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.592 ^a	.850	.257	.14433	.850	3.772	8	56	.001	1.221

a. Predictors: (Constant), Age, Growth, EVO, Liquidity, size, Profitability, NDTs, Tangibility

b. Dependent Variable: Leverage

Source: SPSS Regression Result

From the table above, R-squared is the fraction of the variation in dependent variable (Leverage) that can be accounted for (or predicted) by independent variables. In this case 85% of variations in leverage can be explained by size, growth, liquidity, profitability, non-debt tax shield, age earning volatility and tangibility meaning that there are other factors that influence the total leverage of the construction companies.

Table 4.3: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	1.425	.122		11.654	.000					
size	-.157	.100	-.187	-1.562	.124	-.286	-.204	-.168	.812	1.231
Profitability	-.067	.093	-.092	-.720	.475	-.196	-.096	-.078	.706	1.416
Tangibility	-.119	.041	-.689	-2.938	.005	-.375	-.365	-.317	.211	4.738
Growth	-.084	.119	-.084	-.706	.483	.068	-.094	-.076	.827	1.210
EVO	-.042	.087	-.058	-.483	.631	-.182	-.064	-.052	.792	1.262
Liquidity	-.136	.052	-.352	-2.618	.011	-.105	-.330	-.282	.642	1.558
NDTS	.108	.187	.128	.579	.565	-.219	.077	.062	.238	4.211
Age	-.004	.004	-.133	-1.066	.291	-.046	-.141	-.115	.740	1.351

Dependent Variable:

Leverage

Source: SPSS Regression Result.

The general form of the equation is given by;

$$LG = 1.425 - 0.157SZ - 0.067PF - 0.119TG - 0.084GR - 0.042EV - 0.136LQ + 0.108NDTS - 0.04AG$$

Profitability is negatively correlated with leverage implying that when profits are low then the leverage is also high. Tangibility of assets is negatively correlated with leverage implying that if the firm has no a suitable asset structure for borrowing then it unlikely to borrow. Size of the firm has also a negative correlation Coefficient, this implies that the larger the firm the higher the leverage.

The coefficient estimate for growth is negative (-0.005). This implies that there is less relationship between growth and leverage. Liquidity has a negative coefficient (-0.136) .The negative relationship means that as the level of liquidity rises, the less the likelihood of using more debt. Non-debt tax shield has a positive correlation with leverage. This implies that for every 1 birr increase in NDTs, there is an increase in leverage of 0.108.

4.2.2. Interpretation of Findings

Profitability

In the Trade off Theory (TOT), a positive relationship between a firm's profitability and leverage ratio is expected because taxes, agency costs and bankruptcy costs push more profitable firms towards higher leverage. More profitable firms should prefer debt to benefit from the tax shield. On the other hand, the Pecking Order theory (POT), predicted a negative relationship between firm's profitability and leverage. According to this argument, firms passively accumulate retained earnings, becoming less levered when they are profitable, and accumulate debt, becoming more levered when they are unprofitable.

In this study, the regression result shows there is a negative relationship between profitability of the large Ethiopian construction companies and their level of leverage. As it is presented on table 4.9, the random effect estimation result shows a negative relationship between the profitability of construction companies and their level of leverage, with a regression coefficient of -0.067, t- statistic of -0.720 and P-value of 0.475. Thus, from the result it can be conclude that as the profitability of the construction companies increased, they minimize their reliance on debt financing. This result is consistent with the hypothesis of the study. Most empirical studies support this negative relationship between leverage and profitability, for example Harris and Raviv (2001), Rajan and Zingales, (2005), Huang and Song, (2006), Booth et al., (2001), Titman and Wessels, (2008)..

Growth Opportunity

Pecking order theory states that firms first go to finance its projects from the internally generated funds. However, the growing firms may not capable to finance all its growth by the internally generated funds. Consequentially, firms with relatively high growth will tend to issue securities less subject to information

asymmetries, i.e. short-term debt. This should lead to firms with relatively higher growth having more leverage. Therefore, according to pecking order theory assumption growing firm requires high capital and internal funds are insufficient to meet requirements, and so firms use external borrowing. This results increase in level of leverage. Trade-Off Theory, on the other hand, argues the existence of a negative relationship between growth opportunities and level of debt. According to this theory as companies with good opportunities for growth are encouraged to invest in high risk projects so as to maximize shareholders' income in detriment to creditors. This will results a negative relation with leverage ratio. (Myers (2002))

Consistent with trade off Theory, in this study it is found that there is a statistical significant negative relationship between growth opportunity and leverage ratio of large construction companies. The panel random effect estimation regression result shows a significant negative relationship between growth opportunity of the construction companies and their leverage ratio with a regression coefficient of -0.084, t-statistic of -0.706 and P-value of 0.483.

Size of the firm

Trade off theory predicts a positive relationship between company size and their level of leverage. According to Warner (2011) the positive relationship between size of the firm and leverage ratio exists because larger companies, for instance, have greater possibilities to diversify and a lower risk of bankruptcy and thus they inclined to more debt. In contrast, Pecking Order Theory suggested a negative association between size of the firm and their leverage ratio. This is because of the fact that as the information asymmetry is less in larger companies, these being better able to issue shares, so that it expected a negative relationship between size and level of debt.

As it is suggested by pecking order theory, in this study, the panel random effect estimation result reveals that there is insignificant negative relationship between size and level of leverage with a regression

coefficient of -0.157, t-statistic of - 1.562 and P-value of 0.124. Although, the t-statistic and P-value of the estimation result shows that variables have statistically insignificant relationship, it can be conclude that the size of the firm still explains the variation of the leverage ratio of the construction companies negatively. Therefore, the result of this study, based on panel random effect estimation, is supported by the Pecking order theory.

In consistent with the result of this study Marsh (2002) and Titman and Wessels (2008) have also reported a negative relationship between size of the firm and leverage ratio.

Tangibility of Assets

Regarding the effect of tangibility of the assets of the companies on their leverage ratio, the pecking order theory suggests the existence of a negative relationship. Firms with a high composition of non-current assets are less likely to issue debt because high tangible assets serve as a buffer to asymmetric information problems. Other study which support the pecking order theory was Mazur (2007); concluded that the negative leverage and tangibility relationship in their study of Portuguese service industries was more about greater relevance of agency problems between shareholders and managers and lesser relevance of agency problems between shareholders and creditors. The panel random effect estimation result, in this study, shows a statistical significant negative relationship between tangibility of assets and leverage ratio with a regression coefficient of -0.119, t-statistic of -2.938 and P-value of 0.005. This means that a construction companies with high ratio of fixed assets to total asset have low leverage ratio.

Non-debt tax shield

Trade off theory suggested an inverse relationship between non-debt tax shield and leverage ratio of the companies. This is because companies have an incentive to take debt because they can benefit from the tax shield due to interest deductibility. Thus, as noted by DeAngelo and Masulis, (2007) and Graham (2000), if firms have non-debt tax shields (NDTS), such as depreciation and investment tax credits, they have a lower incentive to use debt from a tax shield point of view and hence use less debt. In contrary to trade off theory and the hypothesis formulated for the study, the result of this study reveals a positive relationship between non-debt tax shield and leverage ratio. The result shows a statistical insignificant positive relationship between non-debt tax shield and leverage ratio with a regression coefficient of 0.108, related t-statistic of 0.579 and P-value of 0.565. Construction companies, generally, have special features of investing on huge construction machinery and equipment. Investing on these types of huge fixed assets generates a high level of depreciation and tax credit and the companies expected to have higher financial leverage.

Consistent with this finding Bradley et al. (2004) found a significant positive relationship between firm leverage and the amount of non-debt tax shields suggesting that firms that invest heavily in tangible assets, generate relatively high levels of depreciation and tax credits, tend to have higher financial leverage. Similarly, Fawad Ahmed et al (2011) found a statistical significant positive relationship between non-debt tax shield and leverage in Pakistani non-financial firms and they argued that most of Pakistani non-financial firms try to reduce the tax payment. The use of both more non-debt tax shield and leverage reduces the taxable income of the firm and, therefore, companies with high non-debt tax shield tend to use high leverage.

Earnings Volatility

Both trade off theory and pecking order theory predicts a negative relationship between earnings volatility and level of leverage. Earning volatility is a signal for financial distress and lending institutions lacks confidence to provide fund. As noted by Marsh (2002), companies with a higher-level of earnings volatility are more likely to go bankrupt, and so they resort less to debt. Consistent with the capital structure theories (both trade of theory and pecking order theory), the regression result of this study shows that there is insignificant negative relationship between earnings volatility and leverage ratio of construction companies with a regression coefficient of -0.042, t-statistic of -0.483 and P-value of 0.631. Therefore, although it is statistically insignificant from the result it can be conclude that the large construction companies with high volatility of earnings have low leverage ratio and this finding is consistent with both TOT and POT.

Prior empirical studies support this negative relationship e.g. Bradley et al. (2004) and Titman and Wessels (2008) and Ashenafi (2005).

Liquidity

Trade off theory predicted a positive relationship between liquidity and leverage ratio, suggesting that the more liquid firm would use external financing due to their ability of paying back liabilities and to get benefit of tax-shields. In contrast with this view, pecking order theory assumes that the more liquid firm would use first its internal funds and would decrease level of external financing, resulting in negative relation between liquidity and leverage.

Consistent with pecking order theory, the leverage ratio of Ethiopian construction companies are inversely related with their leverage ratio. The result shows that there is a statistically significant relationship at 5% significant level. Specifically, panel random effect estimation with a coefficient of -0.136, which is statistically significant at 5% significance level, with t-statistic of -2.618 and P- value of 0.631 confirmed a

negative relationship between liquidity and leverage ratio. Consistent with the result of this study a number of prior empirical evidence found negative relationship between liquidity and leverage; (e.g Mazur (2007) and Fawad Ahmed et al. (2011)).

AGE

Trade off theory suggested that as a firm operates for a long period of time, it establishes a reputation and increases its capacity to take more debt from any lenders and, thus, age of the firm is positively related with leverage. Pecking order theory, on the other hand, argued that as the firm matures it builds reputation leading to better access to equity markets and it implies that age should be negatively related to leverage.

As it is suggested by Pecking order theory, the age of the construction companies is negatively related with their leverage ratio under panel random effect estimation result of this study. The estimation result reveals a statistical significant (at 1% significance level) negative relationship between age of the construction companies and their leverage ratio with a coefficient of -0.004, t- statistic of -1.066 and P-value of 0.29.

4.3. Comparison of the test result with expectations

Table 4.4 below summarizes the comparison of the test result for Ethiopian construction companies with the expectations. Therefore, as the table shows among the expected variables including Age, Liquidity and profitability, the test result of the variables are consistent with the hypothesis formulated for the study.

Table 4.4. Comparison of the test result with expectations'

Variables	Expected Relationship with leverage ratio	Test result for Ethiopian construction Companies
Profitability	-	-(POT)
Growth opportunity	+	-(TOT)
Size	+	-(POT)
Tangibility of assets	+	-(POT)
Non-debt tax shield	-	+(POT)
Earnings Volatility	-	-(POT & TOT)
Liquidity	-	-(POT)
Age	+	-(POT)

Chapter Five

Conclusions and Recommendations

5.1 Conclusions

Since the seminal work of Modigliani and Miller (1958), the issue of capital structure has attracted intense debate in the field of financial management. The basic question is whether there exists an optimal capital structure and what might be its determinants. Extensive research has attempted to identify these factors; however, the findings of prior empirical studies have provided varying evidence related to the impact of these factors on capital structure. Furthermore, the majority of these studies have been conducted in developed countries that have many institutional similarities.

In light of the above, the main objective of this study was to examine the relationship between leverage and firm specific (profitability, tangibility, growth, age, NDTs, EVO, size and liquidity) determinants of capital structure decision, and to understand about theories of capital structure that can explain the capital structure of Construction companies in Ethiopia. To achieve the intended objective the study used quantitative approach. The quantitative data were collected through survey of document reviews from a sample of thirteen construction companies over the time period from 2011-2015. The collected data were analyzed by using statistical package 'SPSS Version 16'.

In order to conduct the empirical analysis, one dependent variable and eight independent

variables were selected from prominent previous research works on capital structure; namely profitability, tangibility, growth, age, NDTs, EVO, size and liquidity. The results of the model showed the existence of the following relationship between leverage and eight independent variables.

Profitability had negative relationship with leverage, which was in line with prior expectation. This result also supports the pecking order theory and prefers using internal finance before raising debt or equity. Similarly, liquidity had a negative and relationship with leverage, which was also in line the expected sign. A negative sign suggests that construction companies with high liquidity ratios or more liquid assets are prefer to utilize these assets to finance their investments and discourage to raise external funds. Moreover, the result for liquidity clearly supports the pecking order and agency theories.

Regarding to the effect of tangibility on the capital structure of construction companies in this study, the result shows that as there was negative relationship with leverage, which is in line with the extended form of pecking order theory. Besides, the results of study indicated that construction companies' size had negative relationship with leverage, which was consistent with pecking order theory. The result also implies that the bigger the construction companies, the less external funds it will use. Growth had a negative relationship with leverage.

The results also, confirms that pecking order theory was pertinent theory in Ethiopian construction industry, while there was a little evidence to support static trade-off theory and the Agency cost theory.

5.2 Recommendations

Lack of databases constitutes the major barrier on conducting capital structure research in Ethiopian construction companies. Using such databases may help to examine and identify additional variables that could determine the capital structure choice of Ethiopian construction companies. Thus, there is a need to develop validated databases to make more data become available in future.

This study examined only firm specific determinants of capital structure of construction companies in Ethiopia because of resource and time limitation. Thus, future researcher may address these deficiencies by including other variables in order to demonstrate the impact of both internal and external variables on the choice of capital structure.

The empirical result of the study shows that the variations on the capital structure of construction companies are more consistent with Pecking Order Theory (POT) of Capital structure. However, trade off theory suggested that firms have optimal debt ratio, which is determined by trading off the benefit of debt financing with its cost and it expected to maximize the value of the firm. But most of the result of this study is consistent with what pecking order theory suggests. Therefore, from this it can be concluded that construction companies in Ethiopia are not in a position to trading off the benefits of debt financing and its cost, and in turn, they may not maintain the optimum debt ratio (leverage ratio), which can increase the value of the firm. Thus, in order to minimize the possible financial distress and falling for bankruptcy and in turn, maximize the value of the firm, construction companies in Ethiopia should finance their operation based on trading off the benefits of debt financing with its cost.

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